

SPACE

Cooperation

**Memorandum of Understanding
Between the
UNITED STATES OF AMERICA
and CANADA**

Signed at Washington November 15, 1994

with

Appendix



NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89—497, approved July 8, 1966
(80 Stat. 271; 1 U.S.C. 113)—

“ . . .the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence . . . of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof.”

CANADA

Space: Cooperation

*Memorandum of Understanding
signed at Washington
November 15, 1994;
Entered into force November 15, 1994.
With appendix.*

MEMORANDUM OF UNDERSTANDING

between the

UNITED STATES NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION

and the

CANADIAN SPACE AGENCY

concerning

COOPERATION IN THE FLIGHT OF THE
MEASUREMENTS OF POLLUTION IN THE
TROPOSPHERE (MOPITT) INSTRUMENT
ON THE NASA POLAR ORBITING PLATFORM
AND RELATED SUPPORT FOR AN INTERNATIONAL
EARTH OBSERVING SYSTEM

The United States National Aeronautics and Space Administration (hereinafter "NASA") and the Canadian Space Agency (hereinafter "CSA"), (hereinafter the "Parties");

Considering that the international scientific community has endorsed the need to improve our understanding of the Earth as a system and to create an integrated scientific observing system which will enable multidisciplinary study of the Earth and long-term systematic monitoring of changes in the Earth system, including the International Geosphere-Biosphere Program of the International Council of Scientific Unions, the World Climate Research Program, and other associated Global Change research programs in which the Parties also participate, and intending that the scientific and technical cooperation undertaken pursuant to this Memorandum of Understanding (MOU) achieves this goal;

Realizing that the timely flow of data in support of scientific and operational uses, including both acquisition and processing, is critical to the success of the program of Earth observations;

Recalling that the Parties and related agencies in the countries represented by these Parties have enjoyed longstanding and fruitful cooperation in the field of Earth observations from space and look forward to continuing such cooperation;

Recognizing that the Parties, in coordination with Japan, the European Space Agency (ESA), the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), and the United States National Oceanic and Atmospheric Administration (NOAA) have begun development of platforms and instruments to fly in Earth orbit which, together, will make up the International Earth Observing System (IEOS);

Considering the Agreement among the Government of the United States of America, Governments of Member States of the European Space Agency, the Government of Japan, and the Government of Canada on Cooperation in the Detailed Design, Development, Operation and Utilization of the Permanently Manned Civil Space Station of September 29, 1988, (hereinafter "the Intergovernmental Agreement" or "IGA");

Considering the Memorandum of Understanding Between the United States National Aeronautics and Space Administration and the Ministry of State for Science and Technology of Canada on Cooperation in the Detailed Design, Development, Operation and Utilization of the Permanently Manned Civil Space Station of September 29, 1988 (hereinafter the "NASA-MOSST Space Station MOU");

Recalling that upon its establishment on March 1st, 1989, CSA succeeded to all the rights and obligations of the Ministry of State for Science and Technology of Canada under the NASA-MOSST Space Station MOU;

Recalling that the Intergovernmental Agreement and the NASA-MOSST Space Station MOU (hereinafter collectively referred to as the "Space Station Agreements") commit NASA to design, develop, and launch a polar platform as an element of the permanently manned civil international Space Station complex (hereinafter "the Space Station");

Noting that NASA will provide an Earth Observing System (EOS) polar platform to be placed in a "morning orbit" (hereinafter the EOS-AM1 platform) to fulfill its polar platform commitment under the Space Station Agreements;

Noting that the NASA-MOSST Space Station MOU commits NASA to provide for its Space Station polar platform:

- agreed standard interfaces for Space Station platform users,
- a platform control center, and
- user support centers;

Recalling that the NASA-MOSST Space Station MOU confirms that NASA will have the responsibility for the overall planning and direction of the operation of the NASA Space Station polar platform contribution, and that the Government of Canada will be provided 3% utilization of that contribution;

Noting that the Canadian Government's 3% utilization of the NASA polar platform called for in the Space Station Agreements is to be fulfilled by NASA by providing to CSA, as outlined and agreed to in this MOU, a flight of the Measurements of Pollution in the Troposphere (MOPITT) instrument on the NASA EOS-AM1 platform, which has a planned five year flight operation lifetime, and by NASA's offering to CSA the opportunity for an additional flight of MOPITT, or of another Canadian MOPITT-sized Earth observation instrument, on NASA EOS-AM2 or another EOS polar platform if NASA is unable to accommodate it on EOS-AM2, the terms and conditions of such additional flight to be eventually agreed upon by the Parties; and

Noting that it has been determined by NASA that its EOS-AM1 platform will not be designed to be serviced by the Shuttle,

Have reached the following Understanding:

Article 1

PURPOSE AND OBJECTIVES

- 1.1 The purpose of this MOU is to establish the scientific and technical cooperation among the Parties as well as their respective roles and responsibilities for the flight of the MOPITT instrument on the NASA EOS-AM1 platform, which is to include:
- A. the planning, development, procurement, integration, testing, launch, and operation of the EOS-AM1 spacecraft;
 - B. the planning, development, calibration, and operation of the MOPITT instrument to measure emitted and reflected infrared radiance in the atmospheric column to permit retrieval of tropospheric carbon monoxide profiles and possibly total-column methane, the feasibility of implementing such total-column methane measurement capability on MOPITT to be decided mutually no later than the Critical Design Review (CDR); and
 - C. the access to and exchange of data from IEOS missions as agreed for research, operational, and other use; and the access to and exchange of research results from investigations using such data.
- 1.2 NASA further offers to CSA the opportunity for an additional flight of MOPITT, or of another Canadian MOPITT-sized Earth observation instrument, on NASA EOS-AM2 or another EOS polar platform if NASA is unable to accommodate it on EOS-AM2, the terms and conditions of such additional flight to be agreed upon by the Parties.
- 1.3 The Parties jointly undertake this program with the objective of furthering cooperation in global change research by enabling the multidisciplinary study and long-term systematic monitoring of the Earth, including research involving data from all Earth observing platforms in the IEOS and related activities of the global change research community, such as sensor calibration and data validation.

Article 2

GENERAL DESCRIPTION OF THE EOS-AM1 PROGRAM

- 2.1 The NASA EOS-AM platforms will be in nominal low-altitude (705 km) circular, sun-synchronous orbits, with the EOS-AM1

platform having a nominal 10:30 am equator crossing time, descending node. Plans call for the launch of EOS-AM1 in June 1998.

- 2.2 Extensive ground system investments in data and information systems, including archive capability, are planned by all Parties in the IEOS to handle the expanded volumes of data that will be acquired, provide users ready access to data, and provide the means for the retention and distribution of research results obtained using the mission data.

Article 3

RELATIONSHIP TO SPACE STATION AGREEMENTS: ORDER OF PRECEDENCE

- 3.1 The Parties undertake the cooperation under this MOU as part of the utilization of Space Station flight elements provided for under the Space Station Agreements. This MOU is subject to and in no way derogates from the provisions of the Space Station Agreements and the respective rights or obligations under the Space Station Agreements of the United States and Canada as Partner States, the Governments of the United States or Canada as Partners, or NASA or CSA as Cooperating Agencies whether or not these rights or obligations are specifically referred to or otherwise included in this MOU.
- 3.2 The cooperation carried out under this MOU and the opportunity offered by NASA to CSA for flight of another Canadian MOPITT-sized Earth observation instrument on NASA EOS-AM2, or another EOS polar platform if NASA cannot accommodate such an instrument on EOS-AM2, will together constitute Canada's 3% use of the NASA Space Station polar platforms, as provided for in the NASA-MOSST Space Station MOU.
- 3.3 This MOU is intended to be consistent with the provisions of the Space Station Agreements.
- 3.4 In the event there is any conflict between the provisions of this MOU and the Space Station Agreements, such conflict will be resolved by giving precedence to the Space Station Agreements.

Article 4

PROGRAMMATIC RESPONSIBILITIES OF NASA

To implement the cooperation within the terms of this MOU, NASA will use its best efforts to fulfill the following responsibilities:

4.1 Platforms

- A. Develop, procure, test and launch into the agreed orbit the EOS-AM1 platform, which will carry and support the MOPITT instrument. The platform will have interfaces and other required resources to enable the MOPITT instrument to meet the specifications and performance level defined and agreed to in a Joint Project Implementation Plan, as set out in Article 6.5 of this MOU.
- B. Perform such post-launch check out procedures and testing as are required to ensure that the platform is supplying the necessary resources to the instrument, and assist the CSA Instrument Team to check out the performance and operation of the MOPITT instrument, as defined and agreed to in the Joint Project Implementation Plan.
- C. Provide and staff an EOS Operations Center (EOC), which will provide command and control functions for the EOS-AM1 and will integrate commands for MOPITT from CSA into the overall mission commands. NASA will operate MOPITT on-orbit for the lifetime of the instrument or platform in accordance with a mission management plan to be agreed upon between the Parties and to be incorporated into the Joint Project Implementation Plan.
- D. Conduct integration and test functions, including operations at the NASA contractor integration and test facility and at the launch site, for the MOPITT instrument provided.
- E. Accommodate instrument-related personnel and test equipment as required and mutually agreed between NASA and CSA to support the integration, testing and operation of the MOPITT instrument.
- F. Provide technical assistance as requested by either Party and mutually agreed, including attending instrument technical reviews.
- G. Accommodate instrument-related personnel at platform technical reviews, if attendance at such reviews is requested by either Party and mutually agreed.
- H. Inform, in a timely manner, the instrument provider of changes in platform or EOS Data and Information System (EOSDIS) technical characteristics or development schedules that affect the instrument interfaces and resources.

- I. Designate a point of delivery and the latest acceptable delivery date, which is to be agreed upon by both Parties in the Joint Project Implementation Plan, for the MOPITT flight unit and related equipment.
- J. Provide health and safety and Quick Look data to the MOPITT support center (also known as Instrument Support Terminal (IST)), as described in Article 5.1.C of this MOU, and involve IST personnel in resolution of conflicts and anomalies.
- K. Confirm NASA-sponsored team members and support participation of NASA-sponsored team members in Science Working Group activities, as required. Ensure that all activities of the NASA-sponsored team members, as related entities of NASA, are carried out in accordance with the terms and conditions set forth in this MOU. NASA will inform, consult and coordinate with the MOPITT Principal Investigator and CSA before making any changes in the NASA-sponsored members of the MOPITT science team, with a goal of minimizing any impact to the MOPITT investigation.
- L. Include the MOPITT Principal Investigator in the EOS Investigator Working Group and include appropriate MOPITT science representatives, as agreed by the Principal Investigator, in relevant working groups.
- M. Carry out all other obligations agreed to in the Joint Project Implementation Plan.
- N. Provide to the Earth Observations International Coordination Working Group (EO-ICWG) a proposed utilization plan, developed in consultation with CSA, for the EOS-AM1 platform. The EO-ICWG will present this utilization plan to the Space Station User Operations Panel (UOP) for review and submission to the Space Station Multilateral Coordination Board (MCB) for approval.
- O. Support, as necessary, the conduct of trade-off studies relating to instrument accommodations, if such support is required by either Party and mutually agreed.

4.2 Data System

- A. Receive, record, and process the raw MOPITT data to level 0 within 24 hours of acquisition, process level 1, including supplemental data as necessary, and agreed higher-level products (i.e., standard

products), consistent with EOS data processing schedules as defined in the Joint Project Implementation Plan, archive these data and products at the designated Distributed Active Archive Center (DAAC), and make these products available in accordance with Article 6 of this MOU.

- B. Designate a National Data Node in the United States of America to be responsible for international coordination, connection, and transfer of data between the data systems of the Parties. The National Data Node will be responsible for creating and maintaining a directory and inventory of relevant data, as agreed to by the Parties. Pursuant to Article 6.2.B of this MOU, NASA has accepted the responsibility of Data Providing Agency (DPA) for MOPITT data, including responsibility for processing, archiving, and distributing MOPITT data on behalf of CSA.

Article 5

PROGRAMMATIC RESPONSIBILITIES OF CSA

To implement the cooperation within the terms of this MOU, CSA will use its best efforts to fulfill the following responsibilities:

5.1 Instruments

- A. Develop and provide for flight on the EOS-AM1 platform the MOPITT instrument, meeting the specifications, schedules, and performance levels (including supporting models and spare parts) as defined and agreed to in the Joint Project Implementation Plan set forth in Article 6.5 of this MOU.
- B. Assist in performing such post-launch check out procedures and testing as are required to ensure that the instrument is being provided the necessary platform resources to function properly and that the platform provider is performing the check-out of the instrument in an orderly manner, as defined and agreed to in the Joint Project Implementation Plan.
- C. Provide and staff a MOPITT support center to monitor the instrument, generate instrument commands and schedules to be transmitted to the EOS Operations Center (EOC) for integration and implementation, receive Quick Look data, and assist in conflict and anomaly resolution.

- D. Provide the agreed MOPITT instrument and all instrument-unique ground support and testing equipment, as identified and mutually-agreed in the Joint Project Implementation Plan for integration and testing, to the NASA-designated delivery point, according to the delivery schedule agreed upon by both Parties in the Joint Project Implementation Plan.
- E. Provide technical assistance as requested by NASA and mutually agreed, including providing appropriate personnel, to support the integration, testing, and operation of MOPITT, including operations at the agreed upon launch site and EOC in accordance with the Joint Project Implementation Plan.
- F. Accommodate NASA personnel at instrument technical reviews and at meetings concerning the interface between the platform and instrument, if attendance at such reviews is requested by either Party and mutually agreed.
- G. Provide appropriate personnel to attend platform technical reviews, if attendance at such reviews is requested by either Party and mutually agreed.
- H. Coordinate with NASA, in a timely manner, any changes in instrument technical characteristics or schedule that affect the platform or EOSDIS interfaces and resources.
- I. Ensure that the platform integration and testing schedule in the Joint Project Implementation Plan is not delayed by instrument malfunction, through provision of spares or repair of the instrument provided in a timely manner, as requested by NASA and mutually agreed.
- J. Support, as necessary, the conduct of trade-off studies relating to instrument accommodations, if such support is requested by NASA and mutually agreed.
- K. Provide for the scientific guidance of MOPITT through the formation of a MOPITT science team that includes participation by NASA-funded investigators, designation of a MOPITT Principal Investigator, and support for the team's participation in the mission or platform working groups, and the MOPITT Principal Investigator's participation in the EOS Investigator Working Group. Ensure that all activities of the MOPITT Principal Investigator and other Canadian-sponsored investigators, as related entities of CSA, are carried out in accordance with the terms and

conditions set forth in this MOU. CSA will inform, consult and coordinate with NASA before making any change in the non-United States' MOPITT science team membership, with a goal of minimizing any impact to the MOPITT investigation.

- L. Carry out all other obligations agreed to in the Joint Project Implementation Plan.
- M. Deliver the flight version of the MOPITT instrument to be manifested on EOS-AM1 to the designated delivery point mutually agreed in the Joint Project Implementation Plan. By instrument Critical Design Review (CDR), CSA will confirm the schedule that will result in the delivery of the flight instrument to NASA by the mutually-agreed date.

5.2 Data System

Designate a National Data Node in Canada to be responsible for international coordination, connection, and transfer of data between the data systems of the Parties. The National Data Node will be responsible for creating and maintaining a directory and an inventory of relevant data, as agreed by the Parties.

- 5.3 Provide to NASA the MOPITT data processing algorithms and relevant pre-launch information that may be identified by either Party, but is mutually agreed by both Parties.

Article 6

MISSION MANAGEMENT AND EARTH OBSERVATION DATA EXCHANGE

- 6.1 Both Parties agree to the following Mission Management Priorities:
 - A. Overall Priorities
 - 1. Platform Health and Safety.
 - 2. Instrument Health and Safety.
 - 3. Data to assist in a declared national or international environmental emergency.
 - B. Initial Calibration
 - 1. Calibration of individual instruments during post-launch commissioning phase.

C. Calibration/Validation

1. Special Observations to enable cross calibration of instruments.
2. Periodic calibration of individual instruments.
3. Support of specific validation measurements.

D. Large Data Acquisitions

1. Acquisitions to continue long-term data records deemed significant by the international science community.
2. Acquisition of time-critical data on specific earth phenomena as established by the international science community.
3. Support of large scale multi-investigator field experiments deemed important by the international science community.

E. Smaller Data Acquisitions

1. Specific requests by cooperating IEOS agencies, the total of which will not exceed 10% of the available duty cycle of each instrument.
2. Support of modest or single investigator field experiments.
3. Acquisitions which have been scheduled two or more times and not successfully fulfilled.

F. All Other Requests for Data Acquisition

- 6.2
- A. NASA and CSA will share the data from NASA's EOS program, as well as data from the other Canadian contributions to IEOS, and may each use these data and make them available to other users in accordance with the IEOS Data Exchange Principles set forth in the Appendix.
 - B. NASA is the DPA for MOPITT data and will process, archive, and distribute MOPITT data on behalf of CSA. NASA will consult with CSA in carrying out other functions of the DPA, specified in the IEOS Data Exchange Principles. NASA is the DPA for data from all other EOS instruments unless otherwise provided in separate agreements between NASA and the EOS instrument provider.

C. NASA will use its best efforts to ensure that all other EOS instrument providers agree to data exchange principles consistent with the IEOS Data Exchange Principles.

- 6.3 Each Party will designate technical, project-level points of contact responsible for the technical implementation of the cooperative activity defined in this MOU.
- 6.4 Each Party will designate management, program-level points of contact responsible for the overall implementation of the cooperative activity defined in this MOU.
- 6.5 The project-level points of contact will develop a Joint Project Implementation Plan governing the platforms, instruments, and data systems referenced in this MOU for initial joint approval by the Parties. The Joint Project Implementation Plan will set out the delivery and formal review schedules and the services and technical documentation to be provided by the instrument provider and the platform provider.
- 6.6 Both Parties will appoint a Change Control Board (CCB), chaired by NASA at the project level, with equal representation from the Parties, to review any proposed changes to the Joint Project Implementation Plan. Such changes may be proposed by either Party. All changes to the Joint Project Implementation Plan must be approved by the CCB. If the CCB is unable to agree on changes, the question will be referred to the designated program-level contacts for resolution. If the program-level contacts are unable to resolve the question, the mechanism contained in Article 14 of this MOU will be invoked.

Article 7

EXCHANGE OF TECHNICAL DATA AND GOODS

The Parties acknowledge and agree that the principles set forth in Article 19, entitled Exchange of Data and Goods, of the IGA apply to the exchange of technical data and goods required to fulfill the responsibilities of NASA and CSA under this MOU. In implementation of such principles, the Parties agree that interface, integration, safety, and testing data (excluding detailed design, manufacturing, and processing data and associated software) will be exchanged without restrictions as to use or disclosure, except as otherwise restricted by national laws or regulations relating to export controls or control of classified data.

Article 8

FINANCIAL ARRANGEMENTS

- 8.1 Each Party will bear the costs of discharging its respective responsibilities, including but not limited to, costs of compensation, travel, and subsistence of its own personnel and transportation of all equipment and other items for which it is responsible under this MOU.
- 8.2 Activities under this MOU are subject to the availability of appropriated funds to the Parties. Should either Party encounter funding problems which may affect its ability to fulfill its responsibilities under this MOU, that Party will notify and consult promptly with the other Party.

Article 9

CUSTOMS CLEARANCE AND VISAS

- 9.1 Each Party will use its best efforts to arrange free customs clearance for goods necessary for the implementation of this MOU. For the purposes of this MOU, equipment furnished by NASA to CSA remains the property of the Government of the United States and equipment furnished by CSA to NASA remains the property of the Government of Canada.
- 9.2 NASA and CSA will use their best efforts to facilitate the issuance of appropriate visas for NASA and CSA personnel, including contractors and investigators participating in IEOS.

Article 10

PUBLIC INFORMATION

- 10.1 The Parties retain the right to release public information regarding their own activities under this MOU.
- 10.2 The Parties undertake to coordinate with each other in advance concerning public information activities that relate to each other's responsibilities or performance under this MOU.

Article 11

CROSS-WAIVER OF LIABILITY; LIABILITY CONVENTION;
TREATMENT OF DATA AND GOODS IN TRANSIT;
INTELLECTUAL PROPERTY; REGISTRATION

The Parties acknowledge and agree that the Cross-Waiver of Liability (Article 16), the Liability Convention (Article 17), Treatment of Data and Goods in Transit (Article 20), Intellectual Property (Article 21) and Registration (Article 5) provisions of the IGA apply to this MOU.

Article 12

PATENT USE - AUTHORIZATION, CONSENT
AND INDEMNIFICATION

- 12.1 In order to avoid any possible interruption in the conduct of this cooperative project, NASA hereby gives to CSA the United States Government's authorization and consent (without prejudice to any rights of indemnification) for all use and manufacture of any invention covered by a United States patent in the performance of CSA responsibilities under this MOU, including the performance of such responsibilities by CSA contractors or subcontractors.
- 12.2 In the event the U.S. Government incurs any liability for the practice of inventions covered by privately-owned U.S. patents, either as royalties owed under an existing U.S. Government patent license or as an unlicensed practice of such patents (patent infringement), and such liability is incurred as a result of CSA and/or any of CSA contractors' or subcontractors' performance of CSA responsibilities under this MOU, CSA agrees to indemnify the United States Government against such liability, including patent infringement costs and reimbursement for any such royalties. CSA will also provide such information and assistance as it has available to the United States Government in defending against any suit or claim for such patent royalties or infringements.

Article 13

INVENTION AND PATENT RIGHTS

Nothing in this MOU will be construed as granting or implying any rights to, or interest in, patents or inventions of the Parties or their contractors or subcontractors.

Article 14

CONSULTATIONS

Each Party will consult with the other in advance of any factors that may affect the terms and conditions of this MOU. Any matter related to the interpretation or implementation of this MOU will be first referred to the NASA Associate Administrator for Mission to Planet Earth and the CSA Director General for Space Science Programs for resolution. Any matter that cannot be resolved at this level will be referred to the NASA Administrator and the CSA President for settlement. Any issue arising out of this MOU not satisfactorily settled through consultation pursuant to this Article may be pursued in accordance with Article 23 entitled Consultations of the IGA.

Article 15

AMENDMENTS

This MOU may be amended at any time by written agreement of the Parties.

Article 16

WITHDRAWAL

- 16.1 Either Party may withdraw from this MOU at any time after having given the other Party at least twelve (12) months written notice of its intent to withdraw.
- 16.2 With a view towards continuation of the overall IEOS, the Parties will endeavor to reach terms and conditions of a Party's withdrawal before the effective date of withdrawal.
- 16.3 Withdrawal by either Party will not affect that Party's continuing commitments under this MOU with regard to liability and the protection of data and goods, unless otherwise agreed in a withdrawal agreement pursuant to Clause 16.2 herein.

Article 17

ENTRY INTO FORCE

This MOU will enter into force upon signature of both Parties and remain in force for the duration of the EOS-AM1 platform lifetime, plus an additional period of ten (10) years for the data related provisions. It may be extended thereafter for such additional periods as may be mutually agreed in writing.

Done at Washington, D.C., this 15th day of November, 1994, in two originals.



FOR THE UNITED STATES
NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION



FOR THE CANADIAN SPACE AGENCY

APPENDIX
IEOS DATA EXCHANGE PRINCIPLES

The Data Exchange Principles contained in this document establish the basis on which the Agencies listed below (hereinafter referenced as the "Agencies") will share the data from the International Earth Observing System (IEOS) among themselves and make such data available to other users. These Agencies are the four Agencies who are responsible for the Earth Observation programmes of the Space Station partners and who will act as Delegations with respect to implementation of the Principles, along with the operational organisations closely related to them. The Agencies are: the European Space Agency (ESA) along with the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) [to be confirmed]; the United States National Aeronautics and Space Administration (NASA) along with the United States National Oceanic and Atmospheric Administration (NOAA); the Japanese Science and Technology Agency (STA) along with the National Space Development Agency of Japan (NASDA), the Ministry of International Trade and Industry of Japan (MITI), the Japan Environment Agency (JEA), and the Japan Meteorological Agency (JMA); and the Canadian Space Agency (CSA).

The IEOS is currently composed of the following platforms and their corresponding Earth Observation instruments which are listed in the IEOS Implementation Plan: the NASA Earth Observing System (EOS), beginning with EOS-AM1; the ENVISAT-1 element of the ESA Polar Orbit Earth Observation Mission (POEM) programme; the NOAA Polar-orbiting Operational Environmental Satellites (POES), beginning with NOAA-N; the Japanese Earth Observing System (JEOS) beginning with the Advanced Earth Observing Satellite (ADEOS); and the NASA/Japanese Tropical Rainfall Measuring Mission (TRMM). The IEOS Agencies will endeavor to include future Earth Observation missions, as appropriate, within the IEOS framework, including application of these Data Exchange Principles.

Any Agency may propose an addition to the IEOS. With the unanimous agreement of all Agencies, a new element may be added to the IEOS and its provider may become an Agency for purposes of these Data Exchange Principles.

The following Principles address the criteria of access and utilisation of data from the above platforms. Modalities of implementation will be agreed by the parties in the IEOS Implementation Plan. Detailed Terms and Conditions for the practical execution of these Principles will be documented in the IEOS Implementation Plan and agreed by the Agencies. The definitions attached to these Data Exchange Principles are an integral part of them, and will be referred to for the correct implementation of all arrangements and cooperative activities carried out in the IEOS.

1. All IEOS Data will be available for peaceful purposes to all users on a non-discriminatory basis and in a timely manner.
2. There will be no period of exclusive data use. Where the need to provide validated data is recognized, any initial period of exclusive data use should be limited and explicitly defined. The goal should be release of data in some preliminary form within three months after the start of routine reception of instrument data.
3. All IEOS Data will be available for the use of each of the Agencies and its designated users at the lowest possible cost for non-commercial use in the following categories: Research, Applications, and Operational Use for the Public Benefit.
4. Agencies which designate users for Research Use and for Applications Use will do so through an Announcement of Opportunity or similar process. The designation will include a definition of the data to be provided. Research Users shall be required to submit their results for publication in the scientific literature and Applications Users shall be required to publish their results in a technical report and both shall be required to provide their results to the designating Agency and to the Data Providing Agency.
5. Any of the Agencies may designate national users of the respective countries or Member States of the Agencies as it deems appropriate to be given access to all IEOS data at the lowest possible cost for Non-commercial Operational Use for the Public Benefit, provided the designating Agency assumes responsibility for ensuring that all the terms and conditions for data use are met. This use will have to be reported to the Data Providing Agency on the basis of commonly agreed criteria including type, usage, and final destination of the data. Designation of users outside the national territory of the Agencies or their member states (e.g., international organisations and agencies in non-participating countries) for Non-commercial Operational Use for the Public Benefit will be done only with the agreement of the Data Providing Agency.
6. For purposes other than 3 above, the specified data will be made available in accordance with terms and conditions to be established by the Data Providing Agency.
7. Each Data Providing Agency will fulfill the data requests of the other Agencies and their designated users to the maximum extent possible. In the event that these data requests exceed the Data Providing Agency's capacity, the Data Providing Agency and the designating Agency will pursue alternative arrangements to fulfill such requests.

8. All data required by the Agencies and their designated users will be made available on condition that the recipient agrees to applicable intellectual property rights terms and conditions and/or proprietary rights consistent with these Data Exchange Principles, and ensures that the data shall not be distributed to non-designated parties, nor used in ways other than those for which the data were provided, without the written consent of the Data Providing Agency.

9. Any of the Agencies may delegate some of its functions to other entities; in which case, such Agency will remain responsible for ensuring compliance with these Data Exchange Principles.

10. Agencies will harmonise criteria and priorities for data acquisition, archiving, and purging, in consultation with other relevant organisations.

Definitions

The following Definitions apply in the context of these Principles:

Applications Use of data is a limited proof of concept study toward: 1) the solution of an applied program to demonstrate the utility of the data; or 2) the demonstration of the operational use of the data.

Data refers to original Earth observation sensor output and higher level products created from it by the Data Providing Agency as part of the standard set of products.

Data Providing Agency is the Agency which has primary responsibility for the distribution of data from a particular instrument or is the owner of such data. The Data Providing Agency will be defined in agreements between the operator of the platform carrying the instrument and the instrument provider should the two be different organisations.

Lowest Possible Cost for designated users is no more than the additional cost of resources, above the cost of the normal planned data system operations, required to fill a specific user request. These costs may include media, labour, expenses for operating and maintaining equipment, as well as delivery charges for mail or electronic transmission. The above costs should not include non-recurring costs such as research, development, and space segment capital cost. However, it may include a reasonable amount towards additional capital cost of data provision.

Non-commercial Use is the utilisation of data to provide a service for the public benefit as distinguished from conferring an economic advantage on a particular user or group of users.

Non-commercial Operational Use for the Public Benefit is the utilisation of data to provide a regular service for the public benefit as distinguished from conferring an economic advantage on a particular user or group of users. An example is the use of data to carry out a mandate of environmental observation and prediction. These activities can be carried out by national or international agencies or other entities designated by these agencies to support their public benefit mandate. Such a user may be requested by the Data Providing Agency and/or the designating Agency to provide a periodic status report back to them.

Non-discriminatory Basis means that all users in a clearly defined data use category can obtain data on the same terms and conditions, and the categories are defined in such a way that all potential users will be included in categories with access to the data.

Research Use of data is utilisation of data in a study or investigation which aims to establish facts or principles.